



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,653	09/23/2003	Jeyhan Karaoguz	BP2911	2074
34399	7590	07/03/2007	EXAMINER	
GARLICK HARRISON & MARKISON			AGHERA, SAMEER R	
P.O. BOX 160727			ART UNIT	PAPER NUMBER
AUSTIN, TX 78716-0727			2616	
MAIL DATE		DELIVERY MODE		
07/03/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/668,653	KARAOGUZ, JEYHAN
	Examiner	Art Unit
	Sameer Aghera	2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-5,7,13-17,20,26-29,31-39,41,47-53,55 and 61-63 is/are rejected.
- 7) Claim(s) 6,8-12,18,19,21-25,30,40,42-46,54 and 56-60 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 23 September 2003 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 4, 5, 14, 16, 27, 35, 36, 38, 39, 48, 50, 52, 53, and 62 are rejected under 35 U.S.C. 102(e) as being anticipated by Hoffmann (7,212,499 B2).

Hoffman discloses a method for antenna steering for a wireless LAN.

Regarding claim 1, a PHY (see “PHY layer,” col. 6, line 8) that includes link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12); a MAC (see “MAC layer,” col. 6, line 4) that is communicatively coupled to the PHY (see Figure 8, items 805 and 810); wherein the link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12) is operable to assess a plurality of operational parameters (see “signal-related parameters,” col. 6, lines 10-11) that corresponds to a PHY link (see “PHY layer,” col. 6, line 8) that communicatively couples the PHY of the device to a PHY of at least one additional device (see Figure 8, items 810 and 815); and wherein the PHY (see “PHY layer,” col. 6, line 8) of the device is operable to provide

assessed information corresponding to the plurality of operational parameters to the MAC (see “can provide signal-related parameters such as signal quality...,” col. 6, lines 10-12).

Regarding claim 2, wherein the MAC (see “MAC layer,” col. 6, line 4) processes the assessed information (see “cause to determine the metrics...,” col. 6, lines 25-27) corresponding to the plurality of operational parameters (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12); and based on the processed assessed information, the MAC modifies at least one operational parameter of the plurality of operational parameters (see “the MAC may also provide...” and “which, in turn, causes the antenna beam angle to change,” col. 6, lines 37-39 and 47-51 respectively).

Regarding claim 4, wherein the MAC (see “MAC layer,” col. 6, line 4) directs the link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12) of the PHY (see “PHY layer,” col. 6, line 8) to assess the plurality of operational parameters (see “signal-related parameters,” col. 6, lines 10-11).

Regarding claim 5, the MAC (see “MAC layer,” col. 6, line 4) directs the link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12) of the PHY (see “PHY layer,” col. 6, line 8) to assess a first plurality of operational parameters (see “RSSI and SQ,” col. 6, lines 11-12) that is a subset of the plurality of operational parameters (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12); the PHY of the device provides assessed information corresponding to the first plurality of operational parameters to the MAC

(see "can provide signal-related parameters such as signal quality...," col. 6, lines 10-12); the MAC processes the assessed information (see "cause to determine the metrics...," col. 6, lines 25-27); and based on the processed assessed information, the MAC (see "MAC layer," col. 6, line 4) directs the link quality intelligence gathering functionality (see "signal-related parameters such as signal quality...," col. 6, lines 10-12) of the PHY (see "PHY layer," col. 6, line 8) to assess a second plurality of operational parameters (see "antenna beam angle," col. 6, lines 49-61) that is a subset of the plurality of operational parameters.

Regarding claim 14, a data rate (see "indicated data rate," col. 6, line 12) employed for a signal (see "signal-related parameters such as signal quality...," col. 6, lines 10-12) transmitted across the PHY link (see "PHY layer," col. 6, line 8).

Regarding claim 16, a PHY (see "PHY layer," col. 6, line 8) that includes link quality intelligence gathering functionality (see "signal-related parameters such as signal quality...," col. 6, lines 10-12); a MAC (see "MAC layer," col. 6, line 4) that is communicatively coupled to the PHY (see Figure 8, items 805 and 810); wherein the MAC directs the link quality intelligence gathering functionality (see "signal-related parameters such as signal quality...," col. 6, lines 10-12) of the PHY to operable to assess a plurality of operational parameters (see "signal-related parameters," col. 6, lines 10-11) that corresponds to a PHY link (see "PHY layer," col. 6, line 8) that communicatively couples the PHY of the device to a PHY of at least one additional device (see Figure 8, items 810 and 815); wherein the PHY of the device (see "PHY layer," col. 6, line 8) is operable to provide assessed information (see "cause to

determine the metrics...," col. 6, lines 25-27) corresponding to the plurality of operational parameters to the MAC (see "can provide signal-related parameters such as signal quality...," col. 6, lines 10-12); wherein the MAC (see "MAC layer," col. 6, line 4) processes the assessed information (see "cause to determine the metrics...," col. 6, lines 25-27) corresponding to the plurality of operational parameters (see "signal-related parameters such as signal quality...," col. 6, lines 10-12); wherein based on the processed assessed information (see "cause to determine the metrics...," col. 6, lines 25-27), the MAC is operable to modify at least one operational parameter of the plurality of operational parameters (see "the MAC may also provide..." and "which, in turn, causes the antenna beam angle to change," col. 6, lines 37-39 and 47-51 respectively).

Regarding claim 27, wherein the operation parameter is a data rate (see "indicated data rate," col. 6, line 12) employed for a signal (see "signal-related parameters such as signal quality...," col. 6, lines 10-12) transmitted across the PHY link (see "PHY layer," col. 6, line 8).

Regarding claim 35, assessing a plurality of operational parameters (see "signal-related parameters," col. 6, lines 10-11) that corresponds to a PHY link (see "PHY layer," col. 6, line 8) that communicatively couples the PHY (see "PHY layer," col. 6, line 8) of the device to a PHY of at least one additional device (see Figure 8, items 810 and 815); providing assessed information (see "provide signal-related parameters," col. 6, lines 10-11) corresponding to the plurality of operational parameters (see "signal-related parameters," col. 6, lines 10-11) to a MAC of the device (see "MAC layer," col. 6, line 4);

and wherein the MAC is communicatively coupled to the PHY (see Figure 8, items 805 and 810).

Regarding claim 36, processing the assessed information (see “cause to determine the metrics...,” col. 6, lines 25-27) corresponding to the plurality of operational parameters (see “signal-related parameters,” col. 6, lines 10-11); and based on the processed assessed information, modifying at least one operational parameter of the plurality of operational parameters (see “the MAC may also provide...” and “which, in turn, causes the antenna beam angle to change,” col. 6, lines 37-39 and 47-51 respectively).

Regarding claim 38, the PHY (see “PHY layer,” col. 6, line 8) includes link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12); and the MAC (see “MAC layer,” col. 6, line 4) directs the link quality intelligence gathering functionality of the PHY (see “PHY layer,” col. 6, line 8) to assess the plurality of operational parameters (see “signal-related parameters,” col. 6, lines 10-11).

Regarding claim 39, the PHY (see “PHY layer,” col. 6, line 8) includes link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12); the MAC (see “MAC layer,” col. 6, line 4) directs the link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12) of the PHY (see “PHY layer,” col. 6, line 8) to assess a first plurality of operational parameters (see “RSSI and SQ,” col. 6, lines 11-12) that is a subset of the plurality of operational parameters (see “signal-related parameters such

as signal quality...," col. 6, lines 10-12); the PHY of the device provides assessed information corresponding to the first plurality of operational parameters to the MAC (see "can provide signal-related parameters such as signal quality...," col. 6, lines 10-12); the MAC processes the assessed information (see "cause to determine the metrics...," col. 6, lines 25-27); and based on the processed assessed information, the MAC (see "MAC layer," col. 6, line 4) directs the link quality intelligence gathering functionality (see "signal-related parameters such as signal quality...," col. 6, lines 10-12) of the PHY (see "PHY layer," col. 6, line 8) to assess a second plurality of operational parameters (see "antenna beam angle," col. 6, lines 49-61) that is a subset of the plurality of operational parameters.

Regarding claim 48, wherein the operation parameter is a data rate (see "indicated data rate," col. 6, line 12) employed for a signal (see "signal-related parameters such as signal quality...," col. 6, lines 10-12) transmitted across the PHY link (see "PHY layer," col. 6, line 8).

Regarding claim 50, assessing a plurality of operational parameters (see "signal-related parameters," col. 6, lines 10-11) that corresponds to a PHY link (see "PHY layer," col. 6, line 8) that communicatively couples the PHY (see "PHY layer," col. 6, line 8) of the device to a PHY of at least one additional device (see Figure 8, items 810 and 815); providing assessed information (see "provide signal-related parameters," col. 6, lines 10-11) corresponding to the plurality of operational parameters (see "signal-related parameters," col. 6, lines 10-11) to a MAC of the device (see "MAC layer," col. 6, line 4); and wherein the MAC is communicatively coupled to the PHY (see Figure 8, items 805

and 810); processing the assessed information (see “cause to determine the metrics...,” col. 6, lines 25-27) corresponding to the plurality of operational parameters (see “signal-related parameters,” col. 6, lines 10-11); and based on the processed assessed information, modifying at least one operational parameter of the plurality of operational parameters (see “the MAC may also provide...” and “which, in turn, causes the antenna beam angle to change,” col. 6, lines 37-39 and 47-51 respectively).

Regarding claim 52, the PHY (see “PHY layer,” col. 6, line 8) includes link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12); and the MAC (see “MAC layer,” col. 6, line 4) directs the link quality intelligence gathering functionality of the PHY (see “PHY layer,” col. 6, line 8) to assess the plurality of operational parameters (see “signal-related parameters,” col. 6, lines 10-11).

Regarding claim 53, the PHY (see “PHY layer,” col. 6, line 8) includes link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12); the MAC (see “MAC layer,” col. 6, line 4) directs the link quality intelligence gathering functionality (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12) of the PHY (see “PHY layer,” col. 6, line 8) to assess a first plurality of operational parameters (see “RSSI and SQ,” col. 6, lines 11-12) that is a subset of the plurality of operational parameters (see “signal-related parameters such as signal quality...,” col. 6, lines 10-12); the PHY of the device provides assessed information corresponding to the first plurality of operational parameters to the MAC (see “can provide signal-related parameters such as signal quality...,” col. 6, lines 10-

12); the MAC processes the assessed information (see "cause to determine the metrics...," col. 6, lines 25-27); and based on the processed assessed information, the MAC (see "MAC layer," col. 6, line 4) directs the link quality intelligence gathering functionality (see "signal-related parameters such as signal quality...," col. 6, lines 10-12) of the PHY (see "PHY layer," col. 6, line 8) to assess a second plurality of operational parameters (see "antenna beam angle," col. 6, lines 49-61) that is a subset of the plurality of operational parameters.

Regarding claim 62, wherein the operation parameter is a data rate (see "indicated data rate," col. 6, line 12) employed for a signal (see "signal-related parameters such as signal quality...," col. 6, lines 10-12) transmitted across the PHY link (see "PHY layer," col. 6, line 8).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 20, 29, 33, 41, 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann (7,212,499 B2) in view of Shurmer (5,974,237).

Hoffman discloses all features as shown in paragraph 2 above including the following regarding **claim 33**: wherein the operation parameter is a data rate (see

"indicated data rate," col. 6, line 12) employed for a signal (see "signal-related parameters such as signal quality . . .," col. 6, lines 10-12) transmitted across the PHY link (see "PHY layer," col. 6, line 8). Hoffman does not disclose the following features: regarding **claims 7, 20, 29, 41, and 55**: assess a first plurality of operational parameters that is a subset of the plurality of operational parameters during a first time and assess a second plurality of operational parameters that is a subset of the plurality of operational parameters during a second time.

Shurmer discloses a communications network monitoring method comprising the following features.

Regarding **claims 7, 20, 29, 41, and 55**, assessing a first plurality (see "performance parameters," col. 6, lines 58) of operational parameters (see "operational parameters," col. 6, line 57) that is a subset of the plurality of operational parameters (see "can be categorized as," col. 6, line 7) during a first time (see "user can specify a period over which a service is monitored," col. 16, lines 37-39) and assess a second plurality (see "service parameter," col. 6, line 61) of operational parameters (see "operational parameters," col. 6, line 57) that is a subset (see "can be categorized as," col. 6, line 7) of the plurality of operational parameters during a second time (see "user can specify a period over which a service is monitored," col. 16, lines 37-39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Hoffman with the features, as taught by Shumer, in order to identify equipment which is working at or near full capacity and equipment which is not performing efficiently (see Shumer, col. 1, lines 35-39).

5. Claims 3, 17, 31, 37, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann (7,212,499 B2) in view of Jorgensen (6,640,248 B1).

Hoffman discloses all features as shown in paragraph 2 above. Hoffman does not disclose the following features: regarding **claims 3, 17, 31, 37, and 51**, the device also includes a higher application layer, communicatively coupled to the MAC, that supports a first service; the MAC provides the processed assessed information to the higher application layer; and based on the processed assessed information provided to the higher application layer, the higher application layer terminates the first service to maintain communication between the device and the at least one additional device via the PHY link.

Jorgenson discloses a method an application aware MAC layer comprising the following features.

Regarding **claims 3, 17, 31, 37, and 51**, the device also includes a higher application layer (see "TCP/IP," Abstract), communicatively coupled to the MAC (see Figure 4, items 414a and 430), that supports a first service (see "application type," Abstract); the MAC (see "MAC layer," Abstract) provides the processed assessed information to the higher application layer (see "the resource allocator schedules bandwidth resources to an IP flow," Abstract); and based on the processed assessed information (see "application type," Abstract) provided to the higher application layer (see "TCP/IP," Abstract), the higher application layer terminates the first service (see "the IP flows of each application can be switched to appropriate destinations in a proper priority order," col. 22, lines 20-24) to maintain communication between the device (see

Figure 1B, item 144) and the at least one additional device via (see Figure 1B, item 146) the PHY link (see “physical layer,” col. 42, line 29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Hoffman with the features, as taught by Jorgenson, in order to provide efficient bandwidth usage by implementing a QoS system in wireless networks (see Jorgenson, col. 3, lines 31-33).

6. Claims 13, 26, 32, 47, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann (7,212,499 B2) in view of Olson (6,928,295 B2).

Hoffman discloses all elements as applied to paragraph 2 above. Hoff does not disclose the following features: regarding **claims 13, 26, 32, 47, and 61**, the at least one additional device provides a registration request to the device when trying to register to the piconet, and based on the processed assessed information the data link layer determines whether to accept or deny the registration request of the at least one additional device.

Olson discloses a wireless device authentication system comprising the following features.

Claims 13, 26, 32, 47, and 61, the at least one additional device (see “guest,” col. 1, line 54) provides a registration request (see “sends information...,” col. 8, lines 7-8) to the device (see “PIN was sent...,” col. 1, lines 54-55) when trying to register to the piconet, and based on the processed assessed information (see “PIN,” col. 1, line 54), the data link layer (see “authentication process,” col. 1, line 41-44) determines whether

to accept or deny the registration request of the at least one additional device (see "he can accept or deny the guest's request," col. 1, lines 57-59).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method shown in Hoffman with the features, as taught by Olson, in order to reduce the possibility of eavesdropping on the authentication process (see Olson, col. 2, lines 6-9).

7. Claims 15, 28, 49, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann (7,212,499 B2) in view of Ho (US 2004/0170217 A1).

Hoffman discloses all elements as applied to paragraph 2 above. Hoffman does not disclose the following features: regarding **claims 15, 28, 49, and 63**, the device is a PNC and the at least one additional device is a DEV.

Ho discloses a wireless personal area network with frequency hopping comprising the following features:

Regarding **claims 15, 28, 49, and 63**, the device is a PNC (see Figure 1, item 108) and the at least one additional device is a DEV (see Figure 1, item 104).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method shown in Hoffman with the features, as taught by Ho, in order to improve network performance for the robust operation of ad hoc piconets (see Ho, page 1, paragraph 4).

8. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffmann (7,212,499 B2) in view of Shurmer (5,974,237), further in view of Ho (US 2004/0170217 A1).

Hoffman in view of Shurmer discloses all elements as shown in paragraph 4 above. Hoffman in view of Shurmer does not disclose the following features: the device is a PNC and the at least one additional device is a DEV.

Ho discloses a wireless personal area network with frequency hopping comprising the following features:

The device is a PNC (see Figure 1, item 108) and the at least one additional device is a DEV (see Figure 1, item 104).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method shown in Hoffman in view of Shurmer with the features, as taught by Ho, in order to improve network performance for the robust operation of ad hoc piconets (see Ho, page 1, paragraph 4).

Allowable Subject Matter

9. Claims 6, 8-12, 18-19, 21-25, 30, 40, 42-46, 54, and 56-60 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sameer Aghera whose telephone number is 571-272-9744. The examiner can normally be reached on M-F 7:30 AM to 5 PM; Off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 571-272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SA

Sameer Aghera

KWANG BIN YAO
SUPERVISORY PATENT EXAMINER

